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ABSTRACT

The paper discusses the use of the Apple II computer as a learning tool for nonverbal handicapped children who use Blissymbols. Described are the following: the Blissapple Program, the Bliss Library (2 diskettes containing the full dictionary set), Drill Maker (which allows assembling symbols for various drills), Single Symbol Drill (to teach individual symbols), Multiple Symbol Drill, Blisstalk (which allows display or printing of a selection), and Blissboard (counterpart of the manual Blissboard). (MC)

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Teaching Blissymbols with the Aid of the Apple II Computer

Florence C. Wertz

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TEACHING BLISSYMBOLS WITH THE AID OF THE APPLE II COMPUTER

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This presentation will focus on the use of the Apple II computer as a learning tool for non-verbal individuals who use Blissymbols. With the severe cutbacks in funding for aides, it is obvious that one must take full advantage of the aid which the computer can provide. Appropriate programs can stimulate communication as well as provide the educational means for independent study. The goal is always to make a handicapped child as independent a student as possible.

This discussion will begin with the evaluation and assessment procedures leading to a selection of an augmentative type of communication at Michael Dowling School. A brief period will be devoted to training for a visual task. This is a critical prerequisite to undertaking the learning of Blissymbols on the computer. Visual training can be developed with many different types of computer programs that are available. One of these is MOTOR TRAINING GAMES by the Alternative Communication System Project. Various alternatives for positioning a user for optimal access to the computer will be considered. For example, a numeric pad allows digit entry without requiring proximity to the computer itself.

The Apple II computer allows for additional peripherals to be added. Various auxiliary devices which allow entry of Blissymbol numbers without typing them on the keyboard will be discussed. The use of a high-resolution printer allows the instructor to prepare and store large quantities of Blissymbol teaching materials of excellent visual quality. (Their teaching excellence is of course determined by the thought which went into their preparation.) The printing capability also lets a child bring home (or to the classroom) a short story he/she has written.

Computer-aided Blissymbol instruction may refer both to:

1. Display of Blissymbols, singly or in groups
2. Repetitive Blissymbol drills
3. Printing of Blissymbols:
   a. in teaching units, or for labelling purposes
      (One example is the Blissymbol counterpart of a reading readiness test. A student is asked to find the named Blissymbol in a set of strips of similar symbols.)
   b. newly learned, for updating parents or classroom teachers
   c. requested by parents to deal with forthcoming needs
   d. requested by classroom teachers to allow nonverbal students to participate in current or forthcoming activities. Here "requested by" should imply the active seeking out of the needs of the classroom teacher or other educational staff by the speech therapist as a member of the team. That is, until such time as classroom teachers are well grounded in Blissymbol instruction and in running of a Blissymbol computer printout program also!

During the last year a number of Blissymbol resources were developed for the Apple II computer. These will be discussed in relation to their applications.

The full set of Blissymbols contained in "Blissymbols for Use" (which we shall call the Dictionary) became available with the BLISSAPPLE program . This was a splendid achievement by G.

Vanderheiden and D. Kelso of the Trace Center (University of Wisconsin, Madison.) It is possible to generate a user's Blissymbol collection on the same disk. Provision is made for various alternative methods of entry of Blissymbol numbers. These were assigned sequentially to the Dictionary set, starting with 100 for "fire". The extraordinarily great capabilities were made possible by the efficient FORTH language.

No matter how splendid the program that is developed, it is human nature to ask for more--in this case, the transferability of Blissymbols to other BASIC programs. To achieve this goal, especially for drill programs, the full Dictionary set was drawn and stored on two diskettes called "BLISS LIBRARY". Its uses as a resource will be detailed.

The ability to use an arbitrary collection of Blissymbols in repetitive drills of various formats requires a transfer program. Ours is DRILL MAKER, which allows symbols to be assembled from BLISS LIBRARY and displayed on a Drill Menu. If the assembly is a thoughtful process, the Blissymbols of a particular drill will share some theme or be similar in appearance. In these two cases one is learning symbols with a logical connection or is developing visual discrimination--or both in some instances.

The learning of a single Blissymbol is aided by SINGLE SYMBOL DRILL. Having designated a drill in which the symbol appears, one designates it as the "focus", along with three "distractor" symbols. First there is an ample discussion with the focus symbol alone present. For the very young child, a picture suggestive of the focus symbol will be taped to the monitor screen. (In practice, one should use a number of pictures to represent the same symbol, so that the student does not associate the symbol with a specific picture.) The distractor symbols are presented randomly for comparison with the focus. Smiling or sad faces reward correct or incorrect matches. Going one step beyond the stage of matching a symbol with the focus, the same set of random displays may then be run in the absence of the focus.

More advanced drill in visual recall (and other abilities to be enumerated) is afforded by MULTIPLE SYMBOL DRILL. A group of three Blissymbols selected from a drill set is displayed in a specified order. After adequate instruction, these symbols disappear. One of the three appears in random position and in random order. The computer judges and scores correctness by whether the current symbol is in its appropriate location.

The MULTIPLE SYMBOL DRILL may also be used as the beginning of a reading program by teaching the association of the Blissymbol words (which remain on the screen throughout the drill) with the symbols.

Pairs of students may take turns in either type of drill. Here there is an obvious peer pressure to make correct identifications, so students must be paired with care.

A drill currently being programmed makes use of animated figures to teach a variety of concepts in association with the Blissymbols which represent them.

Regardless of which computer drill program is used, it is important for the therapist or teacher to document the student's success score (in relation to the total number of opportunities.) The computer displays the tallies of right, wrong, and total number of symbols displayed. The instructor must record in the student's record book the rate of success as a guide to future

lessons. A suggested log for recording the continuum of computer-assisted learning will be shown.

Having generated the full Dictionary Set (BLISS LIBRARY) of Blissymbols in BASIC, it is obviously necessary to be able to display and to print them. Several programs display individual symbols or an uninterrupted sequence; however, the preferred program is BLISSTALK, which allows display or printing of an arbitrary selection, It is analogous to but not identical with BLISSAPPLE. A student who is unable to enter Blissymbol numbers on the keyboard may use the Cursor Mode of entry. On the screen, a cursor dwells successively on the row of digits 0 to 9, plus RETURN and <--. By striking any key at the appropriate time. the student may accumulate the Blissymbol number desired. That symbol is then displayed by striking the keyboard when the cursor is on 'RETURN'.

Using the BLISS LIBRARY, we have generated the diskette counterpart of a Blissboard which has been in use at Michael Dowling School, Minneapolis for a number of years. We refer to this diskette as BLISSBOARD. The symbols are called by the same number as that found on the Dowling Blissboard. BLISSBOARD may also be used as a specific Blissymbol resource, as for DRILL MAKER. Its Blissymbols may be displayed or printed with BLISSBOARD TALK, a program nearly identical to BLISSTALK.

The TRANSLATOR program allows production of BLISS LIBRARY diskettes with appropriate words--as British English for the United Kingdom.) Foreign character sets have been generated to provide special letters in such languages as German, French, Italian, Spanish, Swedish, Norwegian, Danish, Finnish, and Portuguese. Other character sets are possible,.

In summary, a number of Apple II computer programs which aid the teaching of Blissymbolics to the nonverbal handicapped are presently available. The 'aid' is not merely added convenience, but a multiplication of the effectiveness of the Blissymbolics instructor. Some of these also facilitate communication with or between such individuals. Further programs are under development.

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